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IN THE CLAIMS:

Claims 2, 3, 11, 12 and 13 have been amended so as to read as follows:

2. (Amended) A working unit control apparatus of an excavating and loading machine comprising:

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- a boom cylinder controlling a lift of a boom;
 - a boom control valve controlling extension and compression of the boom cylinder;
 - a boom lever instructing an extension and compression speed of the boom cylinder;
 - a boom lever operating amount detector detecting an operating amount of the boom lever;
 - a bucket cylinder controlling a tilt of the bucket;
 - a bucket control valve controlling an extension and compression of the bucket cylinder;
 - a bucket lever instructing an extension and compression speed of the bucket cylinder;
 - a bucket lever operating amount detector detecting an operating amount of the bucket lever;

and

a controller outputting a boom control command value to the boom control valve on the basis of the boom lever operating amount input from the boom lever operating amount detector, and outputting a bucket control command value to the bucket control valve on the basis of the bucket lever operating amount input from the bucket lever operating amount detector, wherein;

said working unit control apparatus has excavating state detecting means detecting an excavating state of a vehicle,

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said controller has a load judging portion judging on the basis of a detecting amount input from the excavating state detecting means whether or not the vehicle is under excavation, and automatic excavation control means setting and outputting an automatic excavation command value to each of the control valves on the basis of the judgment of said load judging portion, and the automatic excavation control means judges an automatic excavation start when the boom lever is operated and said load judging portion judges that the vehicle is under excavation,

the excavating state detecting means is constituted by a vehicle speed detector detecting a vehicle speed and an engine rotational speed detector detecting an engine rotational speed, and

the load judging portion is structured such as to judge that the vehicle is under excavation when the vehicle speed is equal to or less than a value shown by a predetermined curve relating to the engine rotational speed.

3. (Amended) A working unit control apparatus of an excavating and loading machine comprising:

- a boom cylinder controlling a lift of a boom;
- a boom control valve controlling extension and compression of the boom cylinder;
- a boom lever instructing an extension and compression speed of the boom cylinder;
- a boom lever operating amount detector detecting an operating amount of the boom lever;
- a bucket cylinder controlling a tilt of the bucket;
- a bucket control valve controlling an extension and compression of the bucket cylinder;

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a bucket lever instructing an extension and compression speed of the bucket cylinder;
a bucket lever operating amount detector detecting an operating amount of the bucket lever;
and

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a controller outputting a boom control command value to the boom control valve on the basis of the boom lever operating amount input from the boom lever operating amount detector, and outputting a bucket control command value to the bucket control valve on the basis of the bucket lever operating amount input from the bucket lever operating amount detector, wherein:

said working unit control apparatus has excavating state detecting means detecting an excavating state of a vehicle,

said controller has a load judging portion judging on the basis of a detecting amount input from the excavating state detecting means whether or not the vehicle is under excavation, and automatic excavation control means setting and outputting an automatic excavation command value to each of the control valves on the basis of the judgment of said load judging portion, and the automatic excavation control means judges an automatic excavation start when the boom lever is operated and said load judging portion judges that the vehicle is under excavation,

the excavating state detecting means is constituted by an accelerator pedal operating amount detector detecting an accelerator pedal operating amount and an engine rotational speed detector detecting an engine rotational speed, and

the load judging portion is structured such as to judge that the vehicle is under excavation when the accelerator pedal operating amount is equal to or more than a predetermined operating

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Concl. amount and the engine rotational speed is equal to or less than a predetermined rotational speed.

11. (Amended) A working unit control apparatus of an excavating and loading machine comprising:

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Cont. a boom cylinder controlling a lift of a boom;

a boom control valve controlling extension and compression of the boom cylinder;

a boom lever instructing an extension and compression speed of the boom cylinder;

a boom lever operating amount detector detecting an operating amount of the boom lever;

a bucket cylinder controlling a tilt of the bucket;

a bucket control valve controlling an extension and compression of the bucket cylinder; and

a bucket lever instructing an extension and compression speed of the bucket cylinder;

a bucket lever operating amount detector detecting an operating amount of the bucket lever;

and

a controller outputting a boom control command value to the boom control valve on the basis of the boom lever operating amount input from the boom lever operating amount detector, and outputting a bucket control command value to the bucket control valve on the basis of the bucket lever operating amount input from the bucket lever operating amount detector,

wherein said working unit control apparatus has excavating state detecting means detecting an excavating state of a vehicle,

wherein said controller has a load judging portion judging on the basis of a detecting amount

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input from the excavating state detecting means whether or not the vehicle is under excavation, an operating amount change judging portion judging that the boom lever operating amount changed to a zero amount from a predetermined operating amount, and automatic excavation control means setting and outputting an automatic excavation command value to each of the control valves on the basis of the judgment of said load judging portion and said operating amount change judging portion, and

wherein the automatic excavation control means outputs the automatic excavation command value to each of the control valves when said load judging portion judges that the vehicle is under excavation and said operating amount change judging portion judges that the boom lever operating amount changes from a predetermined operating amount to a zero amount.

12. (Amended) A working unit control apparatus of an excavating and loading machine comprising:

- a boom cylinder controlling a lift of a boom;
- a boom control valve controlling extension and compression of the boom cylinder;
- a boom lever instructing an extension and compression speed of the boom cylinder;
- a boom lever operating amount detector detecting an operating amount of the boom lever;
- a bucket cylinder controlling a tilt of the bucket;
- a bucket control valve controlling an extension and compression of the bucket cylinder;
- a bucket lever instructing an extension and compression speed of the bucket cylinder;
- a bucket lever operating amount detector detecting an operating amount of the bucket lever;
- and

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a controller outputting a boom control command value to the boom control valve on the basis of the boom lever operating amount input from the boom lever operating amount detector, and outputting a bucket control command value to the bucket control valve on the basis of the bucket lever operating amount input from the bucket lever operating amount detector, wherein:

said working unit control apparatus has excavating state detecting means detecting an excavating state of a vehicle,

said controller has a load judging portion judging on the basis of a detecting amount input from the excavating state detecting means whether or not the vehicle is under excavation, an operating amount change judging portion judging that the boom lever operating amount changed to a zero amount from a predetermined operating amount, and automatic excavation control means setting and outputting an automatic excavation command value to each of the control valves on the basis of the judgment of said load judging portion and said operating amount change judging portion,

the automatic excavation control means outputs the automatic excavation command value to each of the control valves when said load judging portion judges that the vehicle is under excavation and said operating amount change judging portion judges that the boom lever operating amount changes from a predetermined operating amount to a zero amount,

the excavating state detecting means is constituted by a vehicle speed detector detecting a vehicle speed and an engine rotational speed detector detecting an engine rotational speed, and

the load judging portion is structured such as to judge that the vehicle is under excavation when the vehicle speed is equal to or less than a value shown by a predetermined curve relating to the engine rotational speed.

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13. (Amended) A working unit control apparatus of an excavating and loading machine comprising:

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- a boom cylinder controlling a lift of a boom;
 - a boom control valve controlling extension and compression of the boom cylinder;
 - a boom lever instructing an extension and compression speed of the boom cylinder;
 - a boom lever operating amount detector detecting an operating amount of the boom lever;
 - a bucket cylinder controlling a tilt of the bucket;
 - a bucket control valve controlling an extension and compression of the bucket cylinder;
 - a bucket lever instructing an extension and compression speed of the bucket cylinder;
 - a bucket lever operating amount detector detecting an operating amount of the bucket lever;

and

a controller outputting a boom control command value to the boom control valve on the basis of the boom lever operating amount input from the boom lever operating amount detector, and outputting a bucket control command value to the bucket control valve on the basis of the bucket lever operating amount input from the bucket lever operating amount detector, wherein:

said working unit control apparatus has excavating state detecting means detecting an excavating state of a vehicle,

said controller has a load judging portion judging on the basis of a detecting amount input from the excavating state detecting means whether or not the vehicle is under excavation, an operating amount change judging portion judging that the boom lever operating amount changed to a zero amount from a predetermined operating amount, and automatic excavation control means setting and outputting an automatic excavation command value to each of the control valves on the

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basis of the judgment of said load judging portion and said operating amount change judging portion,

the automatic excavation control means outputs the automatic excavation command value to each of the control valves when said load judging portion judges that the vehicle is under excavation and said operating amount change judging portion judges that the boom lever operating amount changes from a predetermined operating amount to a zero amount,

the excavating state detecting means is constituted by an accelerator pedal operating amount detector detecting an accelerator pedal operating amount and an engine rotational speed detector detecting an engine rotational speed, and

the load judging portion is structured such as to judge that the vehicle is under excavation when the accelerator pedal operating amount is equal to or more than a predetermined operating amount and the engine rotational speed is equal to or less than a predetermined rotational speed.

REMARKS

The specification and claims 2, 3, 11, 12 and 13 have been amended in order to more particularly point out, and distinctly claim the subject matter to which the applicant regards as his invention. It is believed that this Amendment is fully responsive to the Office Action dated May 22, 2002.